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CIRCLE OF THE MECHANIC ARTS.

No. X.

ARCHITECTURE.—NO. VI.

We shall now give some general rules for working the orders of architecture. An order consists of three principal members, or parts; which are, the pedestal, the column, and the entablature. Each of these parts is again composed of three others; the pedestal, having its base, its die or trunk, and its cornice. The column has its base, its shaft, and its capital. And the entablature consists of the architrave, frieze and cornice. A competent knowledge of the methods of drawing and working the five orders, may be said to be the very foundation of the art of building; since from these, with their several proportions and ornaments, arises all that is great, elegant, or harmonious, in the noblest structure. It should, therefore, be the earnest endeavour of those who study architecture, to obtain a thorough knowledge of each distinct order, its parts, proportions, and genuine figure, as being absolutely necessary to every one who aspires to eminence in his profession.

As architecture is more the study of forms than precepts, we regret that our limits do not enable us to give many plates of examples from antiquity which would tend much to confirm what has already been said. We therefore recommend to the attention of those who may wish to know more of this subject, the following excellent works:—Nicholson's Principles of Architecture; Stuarts' Athens, and Sir Wm. Chambers' Treatise on civil Architecture.

Of diminishing the Shaft of a Column. In effecting the diminution of the shaft of a column, the ancients adopted a variery of methods; beginning sometimes from the foot of a shaft, and at others, from one quarter, or one third of its height, the lower part being perfectly cylindrical. The former of these was most in use among the ancients, and, being the most natural and graceful ought to have the preferance, though the latter has been more universally practiced by modern artists. The first architects, says M. Auzoult, probably made their columns in straight lines, in imitation of trees, so that their shaft was the frustrum of a cone; but, finding this form abrupt and disagreeable, they made use of some curve, which springing from the extremities of the superior and inferior diameters of the column, swelling beyond the sides of the cone, and by that means gave a more pleasing figure to the contour. Vitruvius, in the second chapter of his third book, mentions this practice, but in so obscure and cursory a manner, that his meaning has not been understood; and several of the modern architects intending to conform themselvese to his doctrine, have made the diameters of their columns greater in the middle than at the foot of the shaft. Leon Baptisda, Alberti, and others of the Florentine and Roman architects have carried this to a very great excess, for which they have been justly blamed, as it is neither natural, reasonable, nor beautiful. M. Auzoult observes that a column supposing its shaft to be the frustrum of a cone, may have an additional thickness in the middle, without being swelled there, beyond the bulk of its inferior parts; and supposes the addition mentioned by Vitruvius to signify nothing but the increase towards the middle of the column, occasioned by changing the straight line, which at first was in use for a curve.

This supposition is extremely just, being founded on what is observed in the works of antiquity; where there is no instance of columns thicker in the middle than at the bottom, though all have the swelling hinted at by Vitruvius, all of them being terminated by curves, some granite columns excepted, which are bounded by straight lines; a proof, perhaps, of their great antiquity.

M. Blondel teaches various methods of diminishing columns, the best of which is by means of that instrument, which Nichomedes invented to describe the first conchoid, for this, being applied at the bottom of the shaft, performs at one sweep both the swelling and the diminution; giving such a graceful form to the column, that it is generally allowed to be the most perfect practice hitherto discovered. The columns in the Pantheon, accounted the most beautiful among the antiques, are made in this manner; as appears by the exact measures of one of them.

THOM'S SUN DIAL.

"I count the hours that are unclouded."

The above is a view of the beautiful Sun Dial, cut in free stone by the celebrated Thom, which was exhibited at the late Fair of the American Institute. "Throughout the continent of Europe, and the British Isles," says Mr. Walsh, in his report on the subject, "gardens are considered incomplete without a sun dial, while no expense is spared in procuring such specimens as may throw all competition into the shade. We have in this piece of Mr. Thom's, all the qualities that excite the admiration of amateurs. Its height is 4 feet 4 inches, the lower portion of the base 21 inches wide, the upper 15½, the shaft 2 feet, and swelling gracefully out in the centre, while the capital is 11 inches high. We regret to say, that from the very nature of the case, the highly finished oak leaf ornaments around the base of the capital, will be partly obscured from view, by the projection of the square designed for the gnomen. This disadvantage has been seen and guarded against, by the raised platform, on which Mr. T. has caused it to be placed."—*Cultivator.*

MOTT'S GARDEN VASE.

This is a representation of one of the cast iron Vases exhibited by Mr. J. L. Mott, of New-York, at the Fairs of the State Ag. Society and American Institute, and to which honorary premiums were awarded at both places. "In pattern equal to the finest Italian models, in durability far their superior, and embracing imitations of free stone, granite and marble. The cheap rate at which they can be furnished is another, and not a small recommendation of this invention of Mr. M." The Vase is 30 inches high and 25 inches in diameter. They are sold plain, at $9—painted, with three good coats, at $11—in imitation of marble or granite, and Japaned, $12.50.—*Cultivator.*

THE LABORING CLASSES OF EUROPE AND AMERICA.

Extract from an Address before the Albany County Mechanics' Association.

BY E. G. SQUIER.

"The Laboring Classes of America." I know not how this term may sound to others, but to me it calls up associations of such a character that were it possible to convey my idea fully and preserve equal brevity, I should certainly employ some other. Not but that society ever has been, and will ever be divided into classes, for certain distinctions must arise from the natural order of things in every society; yet where the general good forms the leading object of the whole social and political arrangement, they are not subjects of complaint. The sublime conception of the natural equality of man, consecrated by philanthropy and freedom and itself the sustaining principle of both, does not indicate an actual or even possible uniformity in the condition of life. There is no equality in the faculties of man, no equality in corporeal strength; no equality in genius, talents or intellectual powers of any kind. Society, I repeat, ever has been and will ever be divided into classes of more or less relative influence, and these classes will be composed of individuals, no two of whom bear the same exact relation to the whole community. There will exist a distinction between men in whatever condition they may be placed, but it is to the grounds upon which this distinction is oftimes based, that has led to the difficulty we have experienced in the use of the term "laboring classes." It has most generally been used,

where false standards of honor, distinction and glory have existed; where the happiness and welfare of the *many*, have been sacrificed to the interests of the *few*, and where hereditary right of power and aristocratic privileges of birth have elevated one portion of society above the great and deserving mass of mankind.

What idea, then, must the term "*laboring classes*" convey to the mind of the foreigner, or even to the American, who has given any attention to the condition of man in other countries than his own? Does not the whole social organization of Europe recur to his mind in an instant—and who constitute the laboring classes there and what is their condition?

GENTLEMEN,—I could draw you a picture of their condition from which every generous feeling of your nature would revolt with horror. I could tell you of men, crushed to the very earth under their load of oppression—in whose hearts every hope is blighted, and from whose desolate homes the last gleam of happiness has long since faded. The *home* of the European Laborer! Sad misnomer, he has no home! Is yonder wretched hovel his home? Enter—What see you there? Desolation! Look around you—The light streams through the broken roof upon the damp earthen floor, and the wind rustles through a thousand crevices—but no cheerful fire glows on the rude hearth-stone, no happy children gather around, but there, beside the cold embers, sits the gibbering demon of Want and Penury! Look upon that wan and desolate woman, her shriveled limbs, faded eye, and sunken, colorless cheeks. Look upon those shivering children, pale with early suffering, clinging around her, listen to their hoarse, half-stifled hunger-cry of "*bread, bread, give us bread!*"—*This* is the wife, *these* are the children of the European Laborer! And who is he, bowed with premature age, whose brow is furrowed, and whose hands are clenched—who is he, that gazes with the glazed eye of agony upon this scene? The Father, the European Laborer himself! The iron has entered deep into his soul; he gazes upon his famishing children, and on their suffering mother—and the cold icy hand of despair falls heavily on his tortured soul, and robbery, crime, perhaps murder is done under the influence of that agony. He is blind to his guilt—he is deaf to the supplications of his victim; the cry of his children is in his ear, the form of his uncomplaining, dying wife is before him—the deed is done,—the dungeon—the bar—the scaffold!

This is no overdrawn picture. Language is faint, words are too weak, to express the utter wretchedness of the laboring classes of many portions of Europe. The catalogue of their miseries, enumerated by travellers, is truly frightful. Nor does their misery appear from these sources alone; the statistics and government reports of these countries exhibit too authentic a detail of their sufferings. Many under the keen cravings of hunger, make their cry heard in the ears of their fellow men, but many more, in the sullen despair of poverty, hide away in their cellars, and there lie listless and lethargic till death relieves them of their sufferings; or maddened and infuriate they commit crimes for which they suffer an ignominious punishment.

This, I repeat, is no overdrawn picture—and this is the picture that would generally rise to the mind, at the mention of the term "laboring classes;" this idea has attached itself to the phrase and is one powerful reason against its use. Not only so, but it seems to imply that society here, as in Europe, is divided into certain classes or castes. But this, strictly speaking, is not true, at least in this section of our country. Of the South, and its beloved institution, which George McDuffie said was the very foundation and corner-stone of our Freedom, I have nothing to say, further, than there and to the slave, the European application of the term laboring classes would be correct. But here at the North, thank God, we have nothing of the kind. Here are no remnants of old feudal aristocracy, no laws of entail or primogeniture, no permanent distinctions between man and man—no barriers or partitions by which society is divided: there are no classifications in the European sense of the word, among us.

From the Northern Light.

SOCIAL REFORM.

BY D. C. BLOOMER.

The world is full of plans of reform. Our own country is prolific in devising them, and she certainly carries more of them into practice, than any of her neighbors. They keep up a constant din around us. We hear of reforms in church and state—in education and in knowledge—in law and in physics—in books and newspapers—in mechanic arts and in agriculture—in prisons and in punishments—in banks and in banking—in currency and in cash—in finances and in modes of financiering. With how much zeal the advocates of these multifarious schemes, urge them upon the public, you, kind reader, full well know, and have in more instances than one, felt, approved or deplored.

Many of these plans of reform, doubtless possess much real intrinsic value; and those are most worthy the attention of our countrymen, where reform means *to improve*. This is however, not always the fact. Many of those schemes so often broached to a gazing world, are far from being calculated for real genuine improvement. It is not necessary to point out such. Every person with eyes and ears about him, (and for this purpose he will need nothing more,) can do it, in nine cases out of a dozen, for himself.

It is not our design to wage a crusade against reforms; far from it. They are the glory of our age and country; we live and breathe amidst them; our country is filled with their benign influence; our civil and religious liberties are the fruits of a glorious reformation; a reformation which cost our forefathers dearly. Our system of free schools is a reform of which we may well be proud. The equal laws under which we live, have been reformed from the arbitrary codes of other countries. Our system of internal improvements is a great, noble and comprehensive reform, which binds our country together firmer and closer, even, than does the matchless constitution under which we live, and which is diffusing, and will continue to diffuse, blessings innumerable. Oh no! we are not, cannot be the enemy of reform.

And it is because we are not its enemy, that we venture a few words in earnest, it may be feeble support of, not a new one it is true—one often named it may be—but of which less notice is taken, less zeal manifested in its success, than of the thousand idle schemes that engage the attention of the multitude—*Social Reform*. Start not, reader, at these words, as did a great many well meaning, but over sensitive people, when it fell from the lips of Gov. SEWARD, in his excellent Sunday School speech on Staten Island in 1839. Here is an extract from that famous address:

"And need enough" said the Governor, "is there my fellow citizens, for such benevolent action as this in which you are engaged. Our institutions, excellent as they are, have hitherto produced but a small portion of the beneficent results they are calculated to bestow upon the people. The chief of these benefits are EQUALITY. We do indeed enjoy equality of civil rights. But we have not yet attained, we have only approximated towards what is more important, *equality of social condition*.

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"We should be degenerate descendants of our heric forefathers, did we not assail this aristocracy, remove the barriers between the rich and the poor, break the control of the few over the many, extend the largest liberty to the greatest number, and strengthen in every way the democratic principles of our constitution."

Now who does not recollect the spasmodic throes of both friends and foes, when those paragraphs first appeared. They were denounced in quarters where such opposition, was as we conceive, least expected; and the sentiments here inculcated and eloquently enforced, met with friends among those who had been long held up as the enemies of equality and social improvement.

But what is social reform? Not an amalgamation as has been sometimes supposed, of the white race with the black; but it is, as we conceive, to secure to every man, woman and child in our land, whether with a white or black skin, the equal enjoyment of social and civil rights and privileges, in common with the whole race to which they belong; and it points both to the highest niche of eminence to which man can attain. It is not to make the felon equal with the man who obeys the laws and performs all the duties of a good citizen, but it is to make all men good citizens and lovers of the laws. It is not to make all men rich, but it would teach that riches should never be allowed to create distinctions in society; and it aims to make the son of the poor man *rich* in the full enjoyment of all those faculties which God has given him. It would strive for, and attain to a state of entire *social equality* among men—an equality which shall make the honest mechanic as much one of nature's noblemen, as him who rides in the gilded coach; an equality which shall place the daughter of the cartman who drives his cart through our streets, in a rank in society where she will be as much respected as they who are born in a palace, and to inherit a fortune for their dowry. It is, in short, "to remove the barriers between the rich and the poor, break the control of the few over the many, extend the largest liberty to the greatest number, and strengthen in every manner, the democratic principles of our constitution."

There are none, we are sure, who will not pray for such an approximation to "the equality of our social condition," who have a single drop of genuine democratic blood in their veins. Such a reform, and such a reform only, will carry out in all its length and breadth, the great, the glorious principle that all men are created equal. If any there are, however, who oppose it, let them no longer talk about free institutions. If any there be, who seated in their richly furnished parlors—furnished it may be, by the unrequited toil of honest industry—deny the petitions of their starving neighbors for bread—who, rolling in their carriages, turn their eyes from the hovel of the destitute and the rags of the needy, if any there be who believe that the possession of wealth and of rank is the only evidence of merit, and who would scorn the idea that their sons and daughters should associate with those of the honest mechanic, who erected their dwellings or fashioned their plate, let them be marked as the enemies of free institutions—as the enemies of social advancement and social progress.

But those who advocate social reform, are often told that their wishes have been anticipated, and long since realized; and that to our countrymen are already secured equal rights and equal privileges. This is hardly true in regard to civil rights.

Is justice equally meted out to the poor man and the rich? How much does the former, destitute of friends and of the means to make friends, suffer from the grinding exactions of the latter; exactions, which, were a hundredth portion visited upon the wealthy, would cause all the judges in the land to throw up their hands in holy horror. Boast of it as much as we please in fourth of July orations and thanksgiving sermons, the boast cannot prove, what we so often hear asserted, that justice is dealt out alike to the poor man and the rich.

Universal suffrage has been, as of right it should be, established in this and most of the states of the Union; and every man thus enjoys the right of being heard in selecting our rulers. Is not the inquiry then made, do not all men enjoy equality at the ballot boxes? In theory, I admit they do; in practice, far from it. True, each man deposits in them his single ballot, but then one half of those single ballots (it may be less, or it may be more,) are deposited under an influence, which renders those who do so, but puppets in the hands of those who use them, for the accomplishment of their own unhallowed purposes. The influence thus swayed over the minds of too many of our fellow citizens, is not the result of bribery or of threats, not at all; but it is owing to the social inequality which exists in our country. It is owing mainly to ignorance, to prejudice, to overweening attachment, to a sense of infe-

riority, and to a want of a sound judgment and unbiased mind pervading the whole community. The influence of wealth and of superior attainments, is just as much felt at the polls as any where else; and to pretend that the poor and the ignorant man meet at the ballot box on an equal footing with the wealthy and the learned, is absurd.

In civil rights, therefore, we hardly enjoy equal privileges. The influence of wealth, rank and knowledge, is felt, and often times felt to be deplored. They purchase oftentimes, immunity for crime, and sway the judgment of others to promote their own ends.

In our social relations, too, the idea of equality, perfect and complete, is often held out; yet how far this is from being the case, every true observer of society can judge. While the motto that "all men are created equal," is inscribed upon our banners, the situation of the great mass prove the very reverse to be the fact. Aristocracy, the aristocracy of knowledge and of wealth, exists among us in all its forms, creating distinctions often as invidious and as galling as any that can be found, in the avowedly aristocratic countries of the old world.

There are in the United States, over half a million of white persons above the age of twenty years, who are unable to read and write. What a fearful waste of mind and of intellect is there here; and how far below the standard of equality often set up amongst us, do this half million of our fellow countrymen fall! In the ordinary concerns of life, they are daily exposed to the machinations of the crafty, and liable to be cheated and defrauded of the labor and industry of years, by the superior knowledge of those with whom they associate.

But the great evil lies not with those only who have not been taught to read and write. There are thousands, nay millions, of our countrymen, who have attained as much, but yet who are in fact without knowledge and without education. True, those who have learned to write their own names, or to read the instruments to which they affix them, are less liable to fall into the snares which beset the more ignorant, and are therefore able "to drive a better bargain." But whoever counts the blessings of knowledge by dollars and cents, takes but a narrow view of its importance. The citizens of our country have a higher duty to perform, a holier mission to accomplish—to govern themselves. To do this in the right manner, and to secure to themselves the blessings of liberty, we hold that knowledge universally diffused, is indispensable—knowledge which shall reach the whole mass. The character of this knowledge, however, must be of a higher order than mere ability to read and write, or it can never fit those who possess it for the appropriate discharge of all their responsibilities to themselves, their children and their country.

The mere ability to read and write, is often made the means of ministering to the worst of purposes. With just knowledge enough to read, but without enough to discriminate between the good and the bad which is read, it is often that the latter is preferred to the former. Hence it is that the light and useless literature of the day, has become so popular. The works of Bulwer, Dickens, Ainsworth, and the novelists of our own country, are read with a thousand times greater avidity, than are those of Dick, Wayland, Potter, and those truly valuable writers, who are devoting all their energies to the great work of enlightening and improving the mind of the nation.

This mere superficial knowledge, also lays the mind open to the tricks of the demagogue. It is as easy to read the specious harangues of the political gamester, as of the true statesman; and it is as easy to peruse and believe the bland promises of the selfish and scheming politician, as the solemn warnings and truthful admonitions of the true patriot.

In all this, then, the great inequality existing between the learned and unlearned man, is apparent. The latter may become, and often actually does so, the dupe and the victim of the former. He is in mere matters of business, constantly liable to be defrauded; while in the still greater race of life, that of judging and acting righly, he is continually liable to be deceived. He is also by his ignorance, shut out from that society, for which he might be otherwise well fitted. The knowledge of this inequality is harrowing to the soul. It chafes and mortifies, chills and blasts the hopes and the prospects of thousands; and it is the most ineffectual bar to the formation of true nobleness of character. The mind, sensitively alive to its own ignorance, too often sinks into the lowest depths of obscurity. It is weighed down by an incubus, beyond its power to overcome.

The invidious distinctions existing in society, created by the unequal division of wealth among us, it is not now our purpose to notice. That they are marked and apparent, *socially* considered, must, it is believed, be universally admitted. On every hand we behold the mansion of wealth and hovel of poverty standing side by side. We see the rich respected because he is rich; and the poor man, with a thousand times better title to respect, despised, shunned, because he is poor; and what is far worse than this, we behold the children of the latter growing up in ignorance, neglected and forgotten, while we see the child of the former, enjoying all the advantages which richly endowed colleges and seminaries can ensure.

The distinctions created by riches, are less galling and have a far less extensive and blighting influence than those which flow from ignorance. The former, is in the power of almost every member of society to overcome; but for the uneducated man to cast off the manacles that bind down his spirit, is a task which few accomplish.

What then is the true remedy for this social inequality? Our answer would be, education, knowledge. Send the school master forth. Let the mind of the nation be elevated. Let the rising generation be taught to know their rights, and to know how to preserve them. Let the truth be every where proclaimed, that all men are created EQUAL; and this bastard aristocracy, which now assails our institutions, will be speedily overthrown.

To this great purpose of improving the social condition of our countrymen, the hearts and the hands of all true patriots should be freely devoted. It will work out the most noble fruits. It will save our country from the dangers that menace its safety; and it may, nay, will, in all probability, be the great pivot, upon which will turn the great question of self-government.

If distinctions, invidious and anti-republican, are permitted to grow up amongst us, if a patrician and plebian order, a learned and unlearned class are suffered to arise in our midst, the fate of our free form of government, will soon be sealed. It will become, ere long, the spoil of an ambitious, selfish and cunning demagogue, or else it will degenerate into a species of oligarchy; and like the citizens of Venice, we shall continually be flattered with the name of "Liberty," but its substance will have departed from us forever.

Seneca Falls, Dec. 1842.

REGISTER OF PATENTS.

LIST OF PATENTS FOR JULY, 1842.

1. Joseph B. Babcock, Marietta, O., for an improvement in *fire engines*

2. John M. Weeks, Salisbury, Vt., for an improvement in the *bee hive*.

3. Thomas J. Wells, New York, for an improvement in the *horse power*.

4. Oran W. Seely, New York, for improvements in the *steam boiler and evaporator*.

5. Robert English, Lagro, In., for an improvement in the *canal lock*.

6. Silas Lamson, Shelburn Falls, Mass., for an improvement in the mode of *fastening scythes to snaths*.

7. Alex. F. Bean, Woodstock, Vt., for improvements in the combined *cooking and air-heating stove*.

8. W. C. and A. Wheeler, Columbia, N. Y., for an improvement in the endless chain *horse power*.

9. Thomas J. Wells, New York, for a machine for *cutting dovetails and tenons*.

10. Charles D. Childs, York, N. Y., for an improvement in the *smut mill*.

11. C. D. Van Allen, Petersburgh, Va., for an improvement in the *pump*.

12. Farwell H. Hamilton, Schenectady, N. Y., for improvements in machinery for *cutting the threads on wood screws*.

13. Henry A. Buck, Fredonia, N. Y., for an improvement in the *smut machine*, for cleaning wheat, &c.,

14. George Whitlock, Crown Point, N. Y., for an improvement in the *revolving cultivator*.

15. Earl Trumbull, Little Falls, N. Y., for improvements in *bridges*.

16. James Brett, Newburgh, N. Y., for an improvement in the *wrench*.

17. David Evens, Philadelphia, Penn., for an improvement in *locks for doors, chests, &c.*.

18. Lemuel Gilbert, Boston, Mass., for improvements in *piano fortes*.

19. Stephen J. Gould, Cornwall, Ct., for improvements in the *argand burner*, for burning camphine and other chemical oils.

20. Charles O. Wolpers, Cincinnati, O., for an improvement in the *process of vinous fermentation*.

21. Elliot Richardson, West River, Md., for an improvement in the *tobacco press*.

22. Clark Lewis, Syracuse, N. Y., for a combined percussion and reaction *water wheel*.

23. Bailey & Rich, the former of Weybridge, and the latter of Shoreham, Vt., for improvements in the *smut machine* for cleaning wheat and other small grain.

24. Nathaniel F. Hodges, Corning, N. Y., for an improvement in the *reaction water wheel*.

25, George Page, Baltimore, Md., for improvements in the *portable saw mill*, for sawing timber.

26. Calvert & Alanson, Chelmsford, Mass., for an improvement in the *machine for cleansing wool and cotton*.

27. Thomas J. Spear, New Orleans, La., for a method of making *indelible ink*.

28. Isaac S. Pendergast, Barnstead, N. H., for an improvement in the *shoemakers' paring knife*.

29. Joseph H. Ward, Randolph, O., for an improved mode of *heating water for leaching ashes*.

30. Richard M. Cooch, Lambertsville, N. J., for an improved machine for *cutting and gathering flax and hemp*.

31. Charles P. Forbes, Baltimore, Md., for improvements in the machine for *cutting crackers*.

32. Andrew Tracy, Poughkeepsie, N. Y., for an improvement in the machine for *cutting sheet tin, or other sheet metal, and glass*.

33. William Ballard, New York, for an improvement in the form of *spikes and nails*.

34. Thomas Parkinson, Sparta, N. Y., for an improvement in the method of *cutting leather for making horse collars*.

35. Titus D. Gail, Eden, N. Y., for an improve- in the machine for *working and pressing butter*.

36. David Hunter, Laurel Factory, Md., for an improvement in the *ring groove spinner*.

37. James M. Meschutt, New York, for improvements in the *sofa bedstead*.

38. Silas Thurman, Lincoln, Ky., for a compound to be used in the cure of *syphilis, &c.*,

39. John S. Tough, Baltimore, Md., for an improved *measure for liquids*.

40. Mathew Stewart, Jr., Philadelphia, Penn., for an improvement in the *cooking stove*, called the "Franklin economy cooking stove."

41. Andrew D. Worman, Fredericktown, Md., for an improvement in the *mill for manufacturing flour*.

42. Lewis G. Sturdevant, Delaware, O., for an improvement in the *cotton gin*.

43. Joseph T. Pitney, Auburn, N. Y., for an improvement in a surgical instrument called the *speculum ani*.

44. Increase Wilson, New London, Ct., for an improvement in the *mill for granulating corn, powder, bark, &c.*,

45. Samuel Bentz, Boonsboro, Md., for an improvement in the *smut machine*, for cleaning grain.

KNOWLEDGE FOR THE PEOPLE.

BY JOHN TIMBS.

MECHANICS.

Why are wheels generally made of a dished form that is, inclining outwards?

Because they thus acquire astonishing strength indeed that of the arch, as contrasted with the flat or upright wheel; the dished form is farther useful in this, that when the carriage is on an inclined road and more of the weight consequently falls upon the wheel of the lower side, the inferior spokes of the wheel become nearly perpendicular, and therefore support the increased weight more safely. The disadvantage of these wheels, however, is, the inclining wheel naturally describing a curved path, the horses, in drawing straight forward, have to overcome this deviating tendency in all the wheels.—*Arnott.*

Why are axles made of steel, and the parts on which they bear of brass?

Because friction is universally diminished by letting the substances which are to rub each other be of different kinds. The swiftness of a skater, it may be observed, depends much on the dissimilarity between ice and steel.

Why are the fore-wheels of carriages smaller than the hind-wheels?

Because they facilitate the turning of the carriage. The advantage of the wheel is proportioned to the magnitude; the smaller wheel having to rise a steeper curve. It is not true, however, according to the popular prejudice, that the large hind-wheels of coaches and waggons help to push on the little wheels before them.—*Arnott.*

From these causes, continues the same ingenions writer "the difference in performing the same journey of a mile by a sledge and a wheel carriage is, that the former rubs over every roughness in the road, and is jolted by every irregularity, the rubbing part of the latter, the axle, glides very slowly over about thirty yards of a smoothed oiled surface, in a gently waving line. It is ascertained that the resistance is thus reduced to 1-100th of what it is for a sledge."

Why do springs not only render carriages more easy vehicles on rough roads, but much lessen the pull to the horses?

Because, where there is no spring, the whole load must rise with every rising of the road, and must sink with every depression, and the depression cost as much as the rising, because the wheel must be drawn up again from the bottom of it; but in a spring carriage, moving rapidly along, only the parts below the springs are moved, in correspondence with the irregularities, while all above, by the inertia of the matter, have a soft and steady advance.—*Arnott.*

Again, springs of carriages convert all percussion into mere increase of pressure: that is to say, the collision of two hard bodies is changed by the interposition of one that is elastic, into a mere accession of weight. It is probable, that under certain modifications, springs may be applied with great advantage to the heaviest waggons.

In surmounting obstacles, a carriage with its load being lifted over, the springs allow the wheels to arise, while the weights suspended on them are scarcely moved from their horizontal level.

Why are "under-springs" so advantageous in very modern carriages?

Because they insulate from the effects of the shocks, all the parts, excepting the wheels and axletrees themselves. When only the body of the carriage is on springs, the horses have still to rattle the heavy frame-work below it, over all irregularities.

Why, in descending a hilly road, is it common to lock or fix one of the wheels of a carriage?

Because, the friction is then increased, and there is less chance of a rapid descent; the horses having then to pull nearly as much as on a level road, with the wheel free.

We have noticed a very effectual mode of "locking" the hind wheels of carriages, on the continent by screwing a bar transversely, against the outer rim of the wheels, by this means, the wheels may be either partially or wholly locked, according to a powerful screw in the centre of the bar. This mode is adopted by the Paris diligences; we first noticed it in a Swiss *caleche*, of great strength. The bar is rather unsightly, but our excellence in the construction of wheel-carriages should not lead us always to look for elegance, where convenience is a main point, as in a vehicle for travelling.

Why should a road up a very steep hill, be made to wind or zig-zag all the way?

Because, to reach a given height the ease of the pull is greater, exactly as the road is made longer.

Why is it important to make roads as level as possible?

Because, a horse drawing on a road where there is a rise of one foot in twenty, is really lifting one twentieth of the load, as well as overcoming the friction, and other resistance of the carriage.—*Arnott.*

Why do lofty sails often cause open boats to upset?

Because the masts and sails set upon them are as long levers, having the sails as the power, turning upon the centre of buoyancy of the vessel as the fulcrum, and lifting the balance or centre of gravity as the resistance.

WONDERFUL SIGHTS IN THE AIR.

Noah Webster, whose recollections extend "beyond the memory of man," thus discourseth of the olden phenomena of the heavens, later instances of which have so frequently troubled the hearers of Miller and the timorous of all sorts.

To persons not accustomed to see any unusual phenomnon in the heavens, any fiery appearance of the clouds must be very terrific. Ignorance in such cases is a calamity. I had seen more wonderful appearances in the clouds or heavens, and was not the least disturbed.

In the dark day, May 19, 1780, the heavens were covered with a dense cloud for three or four hours; the legislature was in session at Hartford, and such was the darkness that business could not be transacted without candles. During this time the clouds were tinged with a yellow or faint red for hours, for which no cause has been assigned. I stood and viewed this phenomenon with astonishment, but I had not any fear that the world was coming to an end.

In the evening of March 10th, 1782, an extraordinary light spread over the whole hemisphere from horizon to horizon, north and south-east and west. The light was of a yellowish cast, and wavy. The waving of the light was visible, and some persons heard or imagined they heard a slight rustling sound. I then resided in Goshen, New York, and stood half an hour on a bridge over the Wall Kill, to witness this extraordinary phenomenon, but I saw no person that was frightened at the sight.

In the year 1783, a great part of Europe was for weeks overspread with a haziness of atmosphere which caused great consternation. The churches were crowded with supplicants. The astronomer Lalande attempted to allay the fright by endeavoring to account for the appearance, which he ascribed to an uncommon exhalation of watery particles from the great rain of the preceding year. But at last the cause was ascertained to be smoke from the great eruption of the volcano Hecla, in Iceland, which covered more than three thousand square miles with burning lava, in some places to the depth of forty feet. I had this account from doctor Franklin, who was in Europe at the time.

In a late paper, published by the Millerites, I saw an article stating that the northern lights foretell something terrible. The writer seems not to know that in the high northern latitudes, in the sixteenth degree and northward, northern lights are of daily occurrence, and so have been from time immemorial. So illuminated are the heavens that persons may often see to read in the night.

These lights occasionally come so far south as to illuminate the sky in our latitude. Sometimes they do not appear for many years At the close of the seventeenth and beginning of the 18th century those lights were not seen for a long period, and when they re-appeared, about the year 1817, our ancestors, who had not seen or heard of them, were all alarmed, and actually supposed that the day of judgment had come.

During my life I have been so much accustomed to see northern lights, falling stars, so called, and fire balls, that they have long since ceased to excite my curiosity.

Nearly thirty years ago I read an article in a Vermont paper, stating that the northern light, on a certain evening, was so low as to be visible between the spectators and a distant mountain."

SILK BUSINESS IN THE AUBURN PRISON.—A supplemental report recently made to the Inspectors of the Auburn prison, by their agent, Mr. Polhemus, announces the most favorable result of the experiment commenced in May 1941, of employing convicts in the manufacture of silk. The results from the very outset were so encouraging that constant additions have been made to the machinery used and the number of convicts employed in this manufacture; and the opinion is confidently expressed by the agent that "the business may be so extended as ultimately to employ all the convict labor which can be assigned to it consistently with a proper conduct and management of the prison."

The value of the machinery, utensils and implements is $2115, which may be assumed as the cost, and of course includes the labor of the convicts in constructing the same. The force employed in the manufacture of silk has been increased from two to forty convicts, and the aggregate labor of the whole, since the commencement, is 8662 days. The aggregate value of the avails of the silk manufactured, in sewing silks, twist and fabric, together with the materials and products on hand, at low rate, market prices, is.....$12,762 26

The whole expense of the manufacture, exclusive of the labor employed, is... 9,766 51

Leaving the sum of.....$2,996 75

for the avails of the labor and interest on the capital: equal to 34 cents and 6 mills per day for the labor of each convict. This average is equal to that of the products of the labor of convicts under the contracts in mechanical departments.

The sewing silk produced is pronounced by the agent superior to the imported article in strength and softness of texture, and equal in smoothness and in color, and is prefered wherever both have been fairly compared.

AN EMBLEM OF AMERICA—The late Dr. Thornton, in a letter to Mr. Jefferson, says that the *crotolus horridus* (rattlesnake) being peculiar in this country is the finest emblem of the United States that can be found. It never acts but defensively; it never strikes without giving fair warning, and when it does strike, it is fatal!

If it be wise ordinance of Providence that one nation is dependant on the prosperity of another, it is a foolish ordinance of man which endeavors to counteract that superior decree. Countries when left to themselves, flourish in those branches of industry for which their several positions, soils, climates, and the different genius of their inhabitants, are best suited; and if they enjoy freedom of intercourse, the superirority of each country in its own prusuit is a benefit to every other.

The mistaken policy of nations has often been to lessen the benefits of commerce, and to counteract the arrangement of nature, under which each nation has some peculiar advantage in productions, which, by means of *freedom of Trade*, becomes a common blessing to the human race.

ALBANY, SATURDAY, FEB. 18, 1843.

☞ In the press of other matter we have of late lost sight of some departments of our paper which are in part revived this week The list of patents will now be brought up, and more attention given to new inventions.

☞ The communication of W. S. L. on State Prison Labor is in type and will appear next week.

ALBANY MECHANICS' ASSOCIATION.

Prof. EMMONS lectures on MONDAY EVENING, the 20th instant, at the UNITARIAN CHAPEL, at half past 7 o'clock. The mechanics are requested to turn out in a mass. Bring out your wives, your daughters, and your friends, and show that there is yet some spirit amongst you. We trust there will be a full attendance.

DISCOVERY OF COAL IN NEW YORK.
No. II.

In the rocks already enumerated there are two principal ones in which coal has often been supposed to have been discovered, viz: the calciferous sand rock, or species of sandy limestone, and the Utica slate, and the slates of the Hudson river group. In the first of these masses, anthracite, in some localities, is quite common; never in beds or veins, but in small pieces, of the size of a walnut, and sometimes an inch or two in diameter. It is an interesting fact, and is calculated to excite inquiry in relation to its origin, but it is of no consequence as coal. In the last named rocks the black slates are unnecessarily mistaken for coal, though we are of opinion that in consequence of their color they are supposed to indicate the presence of coal, or its proximity—this is, however, erroneous, every part of these rocks have been carefully examined, in this state, and it is satisfactorily proved that no coal is connected with or imbedded in them.

Proceeding upwards from the Hudson river slates, there are no masses in which many deceptive appearances occur, until we reach a series of shales and slates, above the Helderburgh limestone, a gray limestone in heavy beds cropping out near Mr. Clark's, twelve miles west from Albany. This limestone, which is remarkably well characterized by its fossils, extends from the Hudson river to lake Erie, in quite a broad belt, running almost a direct westerly course to Black Rock. The mass at this place is the upper part of the Helderburgh limestone.

Succeeding this belt of limestone on the south are a series of shales and slates, together with dark colored limestone, which have a south and southwesterly dip. Some of these masses are well calculated to deceive those who have not given geology some attention. In the southern counties there are some fossil plants whose stems resemble those of the coal formation. Bituminous springs and small masses of coal are also sometimes found, which are calculated to encourage the expectations of those not well informed upon this subject. These rocks have also been examined with great care, both in Europe and in this country, in all their parts, so that the matter of coal is set at rest by a kind of proof which is of a higher grade than that permitted by reasoning.

To the masses of shales, slates, and their bedded sandstones, the old red sandstone succeeds, which in Europe is so important that it is considered as constituting a system, called frequently the old red system. In this state it is at least two thousand feet thick; it forms the Catskill mountains. There are no traces of coal in this great mass. The only rock which intervenes between the old red sandstone and coal measure, is a conglomerate, a rock made up of cemented pebbles.

From the above remarks it will be inferred that no coal can be found in New York, except in the highest part of the southern tier of counties—but all these points have been carefully examined, and it has been found the highest member, or those nearest the coal formation, is a conglomerate, and this only in limited or insulated patches.

There is one interesting fact which it is proper to state, viz: that the carboniferous limestone, whose place would be between the old red and this conglomerate, is wanting in New York, or does not intervene between the upper rocks along the southern tier of counties, and the coal beds of Pennsylvania. But this absence of rocks does not bring the coal period any nearer to us; thus, the coal measures of Virginia, and some of those of France, rest upon granite—the entire mass of rocks constituting the New York and old red systems being wanting—yet the period in which those beds of coal were formed, was the same as that of Pennsylvania, which rests upon and above all the rocks which have been enumerated. Now the only guides which we have for the presence of coal are coal plants, as they are very properly termed, or petrifactions and casts of the trunks of trees, and when these are wanting there is not the remotest prospect of finding coal. It is therefore hoped that these remarks may not be lost upon those who are interested in these inquiries, otherwise they will be sure to meet with disappointment in the end.

MECHANICS' MUSEUM.

The advantages resulting from the establishment of a museum or depository of inventions, &c., in this central city of the state, in connection with the geological museum, must be apparent to all who have given the least attention to the subject. We are glad to perceive that a proposition is afoot to effect this object, and we trust it may meet with complete success. The various mechanic associations of the state feel a deep interest in the matter, and should the efforts of the mechanics result in the establishment of such an institution, we are confident that it would be productive of good. For want of such a depository we find the hall of the capitol lumbered up with models and specimens of machinery, &c., for all of which the proper place would be in the mechanics' museum, were there one in existence. To our citizens, and especially to our mechanics, it would prove of inestimable value, as affording a place where *practical study*, at all times the best, could be conveniently carried on. United with our mechanics' association, with their lectures, specimens of manufacture, no school could possibly equal it for the value of its instructions. This subject has been discussed in our city association, and all agree as to the feasibility of the plan, and the great practical benefits which would result from its adoption, and now all that remains is for the mechanics to put their shoulders to the wheel, and having said, "it shall be done," go to work vigorously and *do it*. With a room for lectures and conversation, and another for inventions, specimens, models, and library, what more could be desired—what nobler proof of the intelligence and activity of our mechanics, our *laboring men*, those whom the purse-proud have been accustomed to consider but mere tools and machines, incapacitated, by a law of their natures, from participating in the high pleasures of a cultivated understanding, or sharing in intellectual delights. We believe that if there exists any of those aspirations of soul, those longings after mental attainments, among the mechanics, which are always distinguishing marks of an advancing state of society—and which, thank God, are confined to no class—if any thing of the kind exists, we cannot but believe that such an undertaking will succeed, completely, satisfactorily. Let all who feel an interest in the matter, move at once, and wait for no man of wealth or influence to take the lead. The mechanics, we fear, have yet to learn the first great lesson that, however loud unprincipled politicians, or intriguing office seekers, or designing capitalists may be in their protestations of regard, respect or sympathy, they must take care of themselves.

We learn that measures are in train to bring the subject of such an institution as we have spoken of before the proper body, for their action in regard to rooms, &c. Let the co-operation of no mechanic be wanting in this matter.

AMERICAN FARMER AND MECHANIC.

The New York *American Mechanic* seems to have resolved itself into a new shape, under the above title. It has been no very creditable affair from the beginning, by some reason or other—probably bad management and want of proper support. There is a long catalogue of these publications now gone down to Pluto. They were commenced by publishers who probably calculated that of the vast number of mechanics in the country they could safely calculate on the patronage of one out of every hundred or thousand, to a work devoted to matters which interested them exclusively. But it was found that not one mechanic in a thousand could be interested in upholding such an enterprise, and they have perished one after another, unwept and unhonored. Mechanics when applied to, make all sorts of excuses, many of them most ridiculous and absurd, in declining their patronage to such a paper, which, if well conducted and widely circulated, could not fail of having a powerful influence for the good of the whole body, in extricating them from many of the evils under which they rest; of elevating the standard of morality and intelligence among them; and diffusing a knowledge of the principles of their respective arts, on which they are generally so careless of acquiring information. Thus from want of adequate support these papers fall short of their aim. So small and megre a circulation paralyses the efforts of the editor, and he becomes disgusted, careless and indifferent.

The farmers have now several valuable papers devoted exclusively to their interests, and they are well supported; though it is but a few years since there was but one of the kind in the country that

could get support. There are also several which unite the name of Farmer and Mechanic, but we do not know of one that gets a decent patronage; and a considerable share of what they do get is undoubtedly from others than mechanics or farmers. Our own is now, it is believed, the only paper that professes to be exclusively a mechanic's paper. If there are any that doubt its being exactly what a mechanic's paper ought to be, let them imagine that it is not wholly a sinecure, and try what a little additional patronage will do towards effecting a better state of things, before we are also driven to the wall, or obliged to resort to the farmers for aid.

The *American Farmer and Mechanic* is conducted, as we learn by the No. before us, by "working mechanics." It certainly is improved in every respect, and we hope it may meet with encouragement, and under encouragement improve in its character—for which improvement there has indeed long been ample room.

NORTHERN MINES.

We have received assurances upon which we can rely, that a more valuable mine than the Sailly and Averill has been discovered in the same neighborhood, and which will be opened in the spring. It is owned by a gentlemen of this city, and the attention of those who may be authorized to purchase will be called to it whenever our tardy legislature shall see fit to render justice to the mechanics, by passing a law to carry into effect the recommendation of the commissioner.

Should the experiment suggested by Mr. Cook, to employ the escape heat of the forges in driving a steam engine, prove successful, and there can be no doubt of it, the water power on the Saranac, mentioned in the report, can readily be dispensed with; and it is conjectured that by penetrating to a greater depth the ore will become so much purer that no necessity will exist for the process of "separation," as it is termed. Under such circumstances the feasibilities of the project will be greatly enhanced.

EMIGRANT MEETING.

A meeting of the citizens of Albany was called on Thursday evening, to form a society for the purpose of disseminating information and giving useful advice to strangers who may arrive in the United States, or who are desirous of emigrating from foreign countries to establish themselves in this country. The object we presume is to protect emigrants from frauds and extortions by which they are not unfrequently impoverished. We were recently shown a bill paid by a poor man lately arrived in the city, to a grocer on the corner of Hamilton and William streets, by the name of Heffernan, in which bread was charged at 1s. 4d., and other articles in proportion, though they were represented to have been in some instances unfit for eating. The man who purchased them was known to be in a destitute condition and friendless, and was obliged to take what he could get or starve.

STATE PRISON TOOL MAKERS.

As an instance of the regard which the agents of the prisons have to the demands of the mechanics, and the laws passed for their relief(!) we see that within the last few days a contract was made for 300 convicts for five years, to be engaged in tool making. The agents well know that a question is now pending before our legislature, with regard to the future and permanent disposition of the prisoners; and yet, to cut off all action upon the subject, by raising up the bug-bear cry of "inviolability of contract," they evince a most improper haste, in violation of the spirit if not the letter of the law of last winter, to contract the prisoners, prospectively, for a term of years. For what end is all this done but to frustrate the plans proposed by the mechanics and their friends, and to prevent the possibility of relief? The truth is, no means will be left unresorted to, which will tend aught to continue the present iniquitous system of state prison monopoly.

CARBON IN IRON.

In my article of the 28th of January two errors occur which affect the sense materially. In the 10th line, for *casting* read *earthy*; and in the 12th line, for *chloride* read *charcoal*.

In yours of the 4th inst., your correspondent T undertakes to prove that the presence of carbon in iron will either harden or soften it. This proves nothing. I did not question that iron might be so highly carbonated as to destroy its properties. But it then represents something else. As it respects the manufacture of iron, T is entirely mistaken in the change which the two pigs of iron undergo. For instance No. 3, which is brought almost to nature in the blast furnace, has only to part with the carbon in the form of gas; while the No. 1, which is but a trifle more refined than the ore itself, still retains the oxygen, and the earthy matter, or whatever you may please to call it. To throw off this matter in a forge fire, or puddling furnace, requires great labor and heat.

For information I would inquire of T whether in hardening a piece of steel, it carbonates or decarbonates? Or in chilling a piece of cast iron, whether that carbonates or decarbonates? Also in manufacturing what is called malleable cast iron, it is cast of No. 3 pig iron, as hard as flint; now to make it soft like wrought iron, is it carbonated or decarbonated? B.

INTELLIGENCE.

The sword worn by Washington in Forbes' campaign and during the war of independence, and the cane bequeathed by Franklin to Washington, were presented to Congress last week, by Mr. Samuel T. Washington, of Virginia.

The hour of departure of the train from Albany to New York has been changed to 5 o'clock in the morning, so that passengers arrive in New York at 6 in the evening.

The *New London Gazette*, one of the patriarchs of the news paper press having attained its 80th year, has been considerably improved in matter and manner of late. We are happy to see such evidences of its health and prosperity.

A large and destructive fire occured at Port au Prince, in the Island of Hayti, on the 9th of January. About six hundred of the best houses in the town were burnt, and goods destroyed to the amount of four millions.

Fire.—We learn from the Eagle that the "Claremont, (N. H.) Carriage Shop" was destroyed by fire on the 28th ult. Loss 6 or $7,000.

It is shown, by accurate calculation and scientific analysis, that the consumption of water in London is not less than 40,000,000,000 gallons per diem, and that the weight of chalk contained in this large quantity is not less than 24 tons a day, or 8000 tons per annum.

We learn that on Tusday morning last, about 2 o'clock, the cotton factory, known as the Triadelphia Mills, in Montgomery county, about twenty miles from Baltimore, was discovered to be on fire, and was totally destroyed. A great proportion of the stock in this factory is owned in Baltimore. The loss is estimated at $25,000; the insurance amounted to $15,000.

Wooden Railway Bridge.—A bridge has been constructed near Mottram, which attracts much notice. It is composed entirely of Memel timber, and consists of three arches, the span of the center one being 150 feet, and the two others 135 and 120 feet respectively. Each arch is composed of three ribs or laminated planking, nineteen planks being placed on each other to the thickness of five feet. The centre arch is the largest ever built of timber, while that of London bridge is the largest in stone, being 152 feet; and the Great Western railway bridge at Maidenhead, is the largest in brick, 128 feet. The height of this bridge gives it a most colossal appearance. From the bed of the river to the parpet is 130 feet; and a large manufactory on the banks of the stream, when viewed in contrast with its gigantic neighbor, appears like a good sized doll-house; also a bridge of 60 feet span, just below, which in itself is a respectable piece of architecture, now appears really insignificant.

The above bridge seems to be constructed on the same principle adopted in this country some twenty or more years ago, in making bridges of many courses of inch boards pinned or bolted together, on the requisite curve. Boats, too, were made on the same plan, without heavy timber frames. The plan has been known here as *Annesly's* plan.—*Albany Daily Advertiser.*

The adoption of the sliding scale of duties on corn, in England, has broken down many men who engaged in speculations in corn, with the expectation that the duties would be kept up. One man has failed for $1,500,000, another for $450,000 and many others of the same magnitude. This result, though disastrous to the men themselves, and their creditors, is no offset to the advantages derived by the great mass of the workingmen, in the reduction in the price of bread.—*Pittsburgh Sun.*

The mills in Madison, Ohio, known as Trumbull's Mills, including a large woolen factory, were destroyed by fire on Friday morning, Feb. 3., and two men perished in the flames. Loss estimated at about $6,000.

Weaving Pantaloons.—Pantaloons are wove in this city as well as in England. They are of course rather rough in their appearance, and not suited for a Chestnut street dandy. They will be improved, however, and coats will also be made in the same way. G. Martin & Co., in Second street, near Master, are the manufacturers.—*Phil. N. American.*

A Discovery.—Mr. Peter G Obert announces, through a New York paper, and his statement is corroborated by a number of respectable persons, that he has invented a new principle in the mechanic arts, by which mills, factories, and boats of any kind can be driven without water, wind or steam, to as great advantage and less expense than either, and the works will run till worn out, if they have regular attendance, without the least variation in the motion. Two men can keep one run of stone, of 4 feet diameter, running with ease. A small grist mill, and the propelling machinery of a boat, are now in complete operation.

Stone Dressing.—A new patent stone dressing machine has been introduced into Scotland, driven by a steam engine, which will dress the hardest rock or stiffest free stone used for the finer fronts of public buildings. The stones pass through the machine on a long train of carriages, each carriage having one stone fixed to it. The cutting is performed by revolving wheels having tools fastened to them. The stone enters at one end of the machine and comes out at the other, hewn and polished, and cut straight and square down the sides.

We are happy to learn that an extensive order for machinery has been received by the Matteawan Company, and that a large number of hands who have long been idle, are again enabled to resume their accustomed occupation.—*Fishkill Standard.*

As a substitute for Stay laws, Bankrupt laws, Exemption laws, I would suggest that the Legislature of the several States pass laws to the following effect:

Compel all traders to keep a correct set of Books, and once in each year to make out a statement of their assets and liabilities, the same as the Banks of this State are required to do.

This statement they should be compelled to exhibit to their creditors whenever demanded, and also, if requested, at the time of making any purchase, under the penalty that if they make an erroneous statement they should be subject to the Statute for obtaining goods under false pretences. If this plan was adopted, confidence would soon be restored, the system of giving references, which cannot be depended upon, be rendered unnecessary, and credit would be reestablished on a sure and sound basis.—*Jour. Com.*

A Strong Man.—Mr. Peter Myres, an Irishman in the employ of the Collinsville Manufacturing Co., carried on a common wheelbarrow, a few days since, 1742 pounds of bar iron! being only 258 pounds less than *one ton!*

State Prison Labor at the West.—The convicts in the State prisons of Illinois and Missouri have been let out by contract, to men who are to employ them in the manufacture of hemp.

The Young Men's Library, at Seneca Falls, was destroyed by fire on the 2d inst.

During six days of one week in January last, 1923 tons of ice were carried on the Fresh Pond rail road and paid $1,075,65 in tolls.

A Splendid Penknife.—A Sheffield paper gives the following description of a penknife, manufactured by Mr. Nappier. "It is quadrangular shaped, with eight shoulders covered with fine gold, each of which is beautifully filled in the form of a shell. The handle is composed of father of pearl, sunk into fine gold plates, and contains eight pen-blades, the backs of which are inlaid with fine gold. The linings are of the same precious metal. Its cost is estimated at £40!"

We understand that James Burditt of this village has recovered $700 of the Cabot Manufacturing Co. for an injury received by him some four years since, by falling into a reservoir which the Cabot Co. were digging near one of their buildings, and which was left uncovered during the night.—*Chron.*

The bude light has been introduced into the center of the market place, Manchester, England; superseding the various tiers of gas burners which had previously been necessary to diffuse sufficient light around. The change is a great improvement. Several of the shop-keepers in that town are adopting this clear, steady, and pure light, which is fast progressing in public favor.

AUBURN PRISON.

Dr.

Henry Polhemus, agent, in account for general support:

1841, Oct. 1, To balance due the state,...	$4,664 97
1842, Sept. 30, To cash received from the following sources, viz:	
From Coopers' shop,.....	5,423 16
Tool shop,.....	4,178 68
Cotton weave shop,.....	3,463 37
Carpet shop,.....	8,356 08
Tailor shop,.....	3,365 42
Shoe shop,.....	4,476 10
Machine shop,.....	5,801 46
Comb shop,.....	4,196 96
Cabinet shop,.....	7,904 60
Hame shop,.....	7,659 12
Stone shop,.....	4,465 64
Building, &c,.....	1,000 00
Convicts' deposits,.....	89 40
Visitors,.....	1,692 75
Prison, &c,.....	2,368 38
	$69,106 09

Cr.

By monthly accounts of expenditures for general support, per vouchers audited and allowed,.....	67,870 79
Leaving a balance due the state of,.....	$1,235 30

SING-SING PRISON.

Dr.

David L. Seymour, agent, in account for general support:

1841, Sept. 30, To balance due the state,	$2,412 14
1842, Sept. 30, To cash received from the following sources, viz:	
From Smith and lock shop,.....	3,747 00
Stone shop and quarry,.....	2,524 57
Hat shop,.....	5,504 98
Shoe shop,.....	5,538 92
Brass shop,.....	3,323 72
Cooper shop,.....	12,214 05
Boot shop,.....	10,551 58
Tool shop,.....	1,486 69
Weave shop,.....	7,249 46
U. S. convicts,.....	1,261 60
House and farm,.....	114 45
Visitors,.....	311 74
Clothing,.....	10 07
Treasury, stone for state hall,.....	17,988 00
Miscellaneous,.....	96, 26
	$74,335 24

Cr.

By monthly accounts of expenditures for general support, per vouchers audited and allowed,.....	72,769 20
Leaving a balance due the state of,.....	$1,566 04

BUSINESS NOTICES.

☞ All letters and communications intended for this paper should be *post paid to secure attention.*

Terms for vol. 2.—To clubs of 20 or more, having the paper sent in one package, $1 each per annum, in advance.

To clubs of not less than 5, sent as above, $1.25 each, in advance.

Single subscribers $1.50, in advance.

Members of the state and county or town associations, subscribing through the secretary, are entitled to the paper at $1 per annum, in advance.

All papers discontinued at the expiration of the time paid for, unless previously renewed.

BINDING.—Subscribers wanting their volumes bound, can have them done in any style and at reasonable prices, by leaving them at this office.

Several volumes of the Mechanic left to be bound some time since are now ready for delivery. The owners are requested to call for them.

To Printers.—FOR SALE CHEAP, a Fount of second hand Pica, about 200 lbs., in good order. Also a quantity of Leads, of different lengths, as good as new. J. MUNSELL.

Wood Engraving and Designing.

E. FORBES is prepared to attend to all business of the above description at the *Sculpture Rooms* 17 Stanwix Hall.

BOOK BINDING.—HARVEY H. CORNING, sign of the golden ledger, 82 State street, Albany, carries on the above business in all its various branches, viz: PLAIN, EXTRA and SUPER EXTRA—has a first rate RULING MACHINE and other necessary implements for manufacturing BLANK BOOKS of every description, on the most reasonable terms, of the best materials and workmanship.

N. B. An assortment kept on hand. 27.

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N. ORR, (late pupil to J. H. Hall,) is now prepared to execute any orders in the above business, which he may be favored with, and respectfully solicits a share of patronage.

Room No. 6, 3d floor, Exchange.

Having made arrangements with Mr. N. Orr, to do my wood engraving, I recommend him to the public as one who understands his business and will doubtless give satisfaction.

JOHN H. HALL.

Albany, Feb. 4th, 1843.

LEATHER, OIL, AND FINDING STORE,

No. 18 *Hudson Street.*

J. HOCHSTRASSER,

Will continue the above business at his old stand, and having made arrangements with manufacturers of Leather and Morocco in the cities of NEW-YORK, PHILADELPHIA, and ALBANY, and having in his employ first rate workmen, he is enabled to supply his customers with all the articles in his line on the most reasonable terms, at *Wholesale* or *Retail*, the following are included in his assortment: Oak and Hemlock Harness, Bridle, Collar, Horse, Trunk, Valise and Skirting Leather; Hog Skins, Philadelphia Russet Bridle, do. Facing Skins, do. Lining Hides, do. Top Hides, Patent Leather, Coach Roans, Neats Foot and Liver Oil, Currier's Tools, Oak Sole Leather, Hemlock do., Wax and Grain Upper Leather, do. Calf Skins, Keen's Philadelphia do., Seal and Kip Skins, Splits and Wealt Leather, Cordovan, Red, Green, White and Yellow Linings, Goat and Sheep Binding Skins, White Alum Dressed Linings, Dressed and Undressed Morocco, Colored Goat and Sheep Skins, English Shoe Thread of all numbers, India Rubber and Patent Cloth, Apron Skins, Stock Binding, &c.

N. B. An assortment of SHOE MAKER'S FINDINGS will be kept on hand.

Also, *Roller Skins, Engine Hose, Band, Picker, String,* and *Patent Leather*, on hand and made to order. *Albany*, 1841.

To Cabinet-Makers and Upholsterers.

DANIEL FRY, No. 40 State street, *Importer of Cutlery and Hardware*, keeps constantly on hand a good assortment of HAIR SEATING and CURLED HAIR, together with a complete assortment of *Cabinet Makers' Hardware*, which is offered for sale low for cash or approved credit.

FIRE ENGINES!!

THE subscribers are manufacturing at Waterford, on an extensive scale, Fire Engines of various patterns, to suit purchasers, and they do not hesitate to recommend their Engines as decidedly superior to any now in use.

They manufacture the common Piston Engine, to work with chains or connecting rods, which they have improved in the construction of the brakes and the application of the power, so as to give them a decided advantage over those now in use. They also manufacture Rogers' Patent Balance Fire Engine, which has always been proved to be of *superior* power to all others.

Prices at the Factory, in complete order for use:

Those designed

For 40 mee, largest Philadelphia size or 11 inch chambers,						$850
" 28 "	"	Albany	"	8 1-4	"	700
" 22 "	"	Common	"	7	"	600
" 16 "	"	N. York city	"	6 1-2	"	500
" 12 "	"	Small		5 1-2	"	450

These prices are one hundred dollars below what engines have formerly been sold for, but they are reduced to suit the times.

The above prices can be reduced $50, by dispensing with the tower and goose neck and passing the water through the forward end of the machine. The *utility* of such an engine is fully equal to any other form, but its appearance is not quite so good. They also manufacture Factory Engines and Forcing Pumps of all sizes; Suction and Leading Hose to order, both rivetted and sewed, of the best quality.

They have been in the business 8 years, and might furnish many testimonials of good workmanship, &c., but as purchasers are supposed to prefer judging for themselves, the subscribers will furnish an engine where desired, and if on trial it is not fully equal in *all* respects to the *best* engines now in use, they will take it away without charge. Having an unlimited water power situated at the head of sloop navigation on the Hudson river, and near the junction of the Champlain and Erie canal, with a rail road connecting east with Boston and west with Buffalo, our facilities and arrangements for manufacturing are such that orders can be filled at any season of the year, and with the greatest promptness and despatch at the lowest rates.

L. BUTTON & Co.,
Waterford, Saratoga Co., N.Y.

MISCELLANY.

A HUGE PAW.

Verses to the memory of a blacksmith, recited by Mr. Browning, during his lecture on iron at the Mechanic's Institute last December.

With the nerves of a Sampson, the son of the sledge,
By the anvil his livelihood got;
With the skill of old Vulcan could temper an edge,
"And strike when his iron was hot."

With the sons of St. Crispin no kindred he claimed,
With "the last" he had nothing to do;
He handled no brad-awl, but yet in his time
He had made many an excellent shoe.

He blew up no coals of sedition, but still
His bellows were always in blast;
And I do maintain it, deny it who will,
He had but one vice to the last.

No actor was he, or concerned with the stage,
Had no audience to shout or applaud;
Yet oft in his shop, like a crowd in a rage,
The voice of uphissing was heard.

The *stealing* of axes was part of his cares,
Yet in thieving he never was found;
And althu' he was constantly running on bars,
No vessel he e'er ran aground.

Now, alas and alack! what more shall I say
Of old Vulcan's unfortunate son?
The priest and the sexton have borne him away,
And the sound of his hammer is gone.

READING.—Of all the amusements that can be imagined for the hard working man, after his daily toil or in its intervals, there is nothing like reading a newspaper or book. It calls for no bodily exertion, of which he already has enough, or perhaps too much. It relieves his home of its dulness and sameness. It transports him into livelier and gayer, and more diversified and interesting scenes; and while he enjoys himself there, he may forget the evils of the present moment fully as much as if he were ever so drunk, with the advantage of himself the next day with the money in his pocket, or at least laid out for real necessaries, and without the miseries of the drunkard's mind and body. Nay, it accompanies him to his next day's work; and if what he has been reading be any thing above the idlest and lightest, gives him something to think of besides the mere mechanical drudgery of his every day occupation; something he can enjoy while absent and look forward with pleasure to. If I were to pray for a taste which would stand me instead under every variety of circumstance, and be a source of happiness and cheerfulness to me through life, and a shield against its ills, however things might go amiss, and the world frown on me, it would be a taste for reading.—*Sir J. Marshall.*

ST. PAUL'S CLOCK, LONDON.—A writer in the Hartford Courant, thus describes the clock works in the tower of this cathedral:—The pendulum is fourteen feet long, and the weight at the end is one cwt.; the dials on the outside are regulated by a smaller one within; the length of the minute hands on the exterior dials is eight feet, and the weight of each seventy-five pounds; he length of the hour hands is five feet five inches, and the weight forty-four pounds each, the diameter of the dials is eighteen feet ten inches, and the length of hour figures two feet two and a half inches. The fine toned bell, which strikes the hours, is clearly distinguishable from every other bell in the metropolis, and has been distinctly heard at the distance of twenty miles. It is about ten feet in diameter, and is said to weigh four and a half tons. This bell is tolled on the death of any member of the royal family, of the lord mayor, bishop of London, or dean of the cathedral.

The whole expense of building the cathedral was about a million and a half pounds sterling—in the United States currency about six and two-thirds millions of dollars.

THE GASTRIC JUICE.—It is a remarkable circumstance, first observed by John Hunter, that the gastric juice will, when the individual dies, dissolves the very stomach that has secreted this powerful solvent, and had resisted this action when living. The knowledge of this fact was the means acquitting an individual accused of the crime of poisoning.

BELLS.—The nearer bells are hung to the ground, other things being equal, the further they can be heared. Dr. Franklin has stated that some years ago the inhabitants of Philadelphia had a new bell imported from England, and in order to judge of the sound, the bell was raised on a triangle in the great street of that city, and struck as it happened on a market day; when the people coming to market were surprised at hearing the sound of a bell at a greater distance from the city than they had ever heard any bell before.—This circumstance excited the attention of the curious; and it was discovered that the sound of the bell, when struck in the street, reached nearly double the distance it did when raised from the street.

FLASH DRINKS.—A friend has sent us a list of fancy drinks. Among them we find, "Tip and Ty, fiscal agent, Veto, poor man's punch, Joy, I. O. U., Tippena Pecco, timber doodle, moral suasion, Jewett's fancy, split ticket, discount," and others too numerous to mention.

FURNITURE.—Almost all furniture in constant use, particularly in a large town, is generally improved by washing with vinegar and water, and afterwards applying cold drawn linseed oil, being well rubbed. Great care should be taken not to let it remain long, and to have it well rubbed afterwards. It should again be rubbed a day or two after.

PADDY FROM CORK.—The following circumstance is said to have given rise to the vulgar saying, "see Paddy from Cork with his coat buttoned behind."

When the famous partisan O'Laughlin was retreating before Lord Broghill, he halted and ordered his men to turn their coats and button them behind, to put on their wigs the hind part before, and to reverse their cocked hats with the peaks behind, for then my lads, said he, while we are running away, the enemy will think we are marching up to them.

The stratagem succeeded, but it got this new joke upon the Irish.

It will rather take the reader by surprise to be told that in a life of 65 years' duration with a daily moderate allowance of mutton, for instance, he will have consumed a flock of 350 sheep; and that although, for a dinner alone, adding to his mutton a reasonable allowance of potatoes and vegetables, with a pint of wine, daily for 30 years of this period, about 30 tons of solids and liquids must have passed through his stomach.

FATHERLY ADVICE.—"Where have you been all day?" said Richard Brinsley Sheridan to his son Tom.

"You could not guess, though you should try a week," replied his dutiful offspring.

"Perhaps you have been to pay for that new pair of boots. That is the most likely improbability."

"No, father, I have not; but I don't think you 'll ever guess; so, I'll tell you to save trouble. I've been at the bottom of a coal pit."

"What carried you there?"

"O, no particular motive; I only went into the pit to be able to say I had been in one."

"Couldn't you say that without going, you fool?"

"Why does Jewel wiggle his tail, pa?"

"Because he is pleased by son."

A few days afterwards, the son skinned an eel by way of recreation.

"How could you be so cruel, my boy?"

"Cruel, pa!" the eel wiggled his tail all the time, and so I'm sure he was wonderfully pleased."

LITTLE PECULIARITIES.—Dean Swift remarked with much truth; doubtless, that in the establishing of colonies the French commence with a fort, the Spaniards with a church and the English with a grog shop.

PATENT AGENCY AND MECHANICAL ENGINEERING, *Office on F street, between 7th and 8th streets, opposite the Patent Office, Washington City, D. C.*—The subscriber has resigned his situation in the patent office (where he for some time superintended the restoration of patents destroyed by fire in 1836) to devote himself to the preparation of specifications and drawings, and all matters connected with the obtaining of patents for useful inventions either in this country or Europe. His experience in theoretical and practical mechanics, together with an intimate knowledge of the progress of the useful arts and manufactures, at home and abroad, will enable him to judge of the novelty and utility of inventions submitted to his examination; and as patents are not granted, under the existing patent laws, when the alleged inventions are wanting in novelty, or contravene the established laws of science, he will be able to furnish all the information necessary to avoid the expense of making application for patents which could not be granted.

Having established a foreign correspondence, he will be able to secure patents in Great Britain, France, and other parts of the continent, or furnish information, and prepare all the necessary papers for that purpose.

A model for a machine or apparatus, or specimens for a composition of matter, are required by law, before a patent can issue; by sending a model or specimens to the subscriber, with a short statement of the object of the invention, the necessary papers and drawings will be prepared and forwarded to the applicant for execution, thereby obviating the expenses consequent upon a journey to Washington, or delay in issuing the patent.

Being well acquainted with the patent laws of the United States, England and France, and the decisions of the courts in patent cases, he tenders his services where information is required in reference to infringements of patents, or defence against suits for infringement, such as compiling and arranging evidence, &c.

To individuals and companies wishing to procure drawings and estimates of machinery, or buildings, for manufactories, on the most modern and improved plans, or any other matter connected with mechanical engineering, he will furnish information; and, should it be required, will locate and superintend structures of this description.

Wishing to be generally useful to mechanics and inventors, he will attend to the sale of machinery and patent rights; this, being a place of resort from all parts of the Union, is perhaps the best location for such a purpose.

Papers relating to patents can be sent to the commissioner of patents, when voluminous, free of postage, and models sent to the collectors of the principal ports, will also come free of expense, and the subscriber can be advised thereof by letter, which in all cases must be post paid. All applications for information relating to patents must be accompanied by a fee of five dollars; charges for other business transactions will be made according to their magnitude.

J. JAMES GREENOUGH.

Certificate of HON. H. L. ELLSWORTH, *Commissioner of Patents.*

PATENT OFFICE, NOV. 20TH, 1842.

Mr. J. J. Greenough, who has for some years been employed in the patent office, in a highly responsible situation, under the act of 1836, restoring the records, having to my regret tendered his resignation, I take great pleasure in recommending him as a gentleman worthy of confidence, and as being particularly qualified to take charge of any business requiring a knowledge of mechanical science, the progress of the arts, and patent improvements. Mr. Greenough is also well acquainted with the practice of this office.

HENRY L. ELLSWORTH.

REFERENCES.—Hon. S. Prentiss, of *Vt.*, U. S. Senate; Hon. J. P. Kennedy, of *Md.*, U. S. House of Rep.; Hon. John C. Clark, of *N. Y.*, U. S. House of Rep.; Hon. W. Cranch, *Chief Justice, D. C.*; J. W. Hand, Esq., *Chief Clerk, Patent Office;* C. M. Keeler, Esq., *Examiner, Patent Office.*

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